

ABSTRACT

An object of the present invention is to provide a method and an apparatus for purifying an oxygen containing gas by which not only the oxygen containing gas can be instantaneously disinfected, deodorized, and purified, but also hardly decomposable organic compounds contained in the gas can be decomposed into low molecular weight compounds such as carbonic acid gas and water; and the method comprises a first step for radiating ultraviolet rays of a short wavelength of 110 nm or longer, but shorter than 200 nm to the gas, for example, an air to be treated to generate ozone, a second step for radiating ultraviolet rays of a medium wavelength of 200 nm or longer, but shorter than 300 nm to the air treated in the first step to form active oxygen, and a third step for radiating ultraviolet rays of a long wavelength of 300 nm or longer, but shorter than 380 nm to the air treated in the second step to convert the active oxygen into oxygen molecule in ground state, at least the second and/or third step being conducted in the presence of a photocatalyst comprising particles of titanium oxide of an orthorhombic crystal system or particles of titanium oxide of an orthorhombic crystal system supporting fine particles of another metal.